

INTERNATIONAL SEARCH REPORT

International Application No
 /GB2004/001461

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01R33/565

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01R G01N G01V

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, IBM-TDB, COMPENDEX, INSPEC, BIOSIS, EMBASE, MEDLINE, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DONG S ET AL: "Rectification of distortion in MRI for stereotaxy" PROCEEDINGS OF THE ANNUAL SYMPOSIUM ON COMPUTER BASED MEDICAL SYSTEMS. DURHAM, JUNE 14 - 17, 1992, NEW YORK, IEEE.D, US, vol. SYMP. 5, 14 June 1992 (1992-06-14), pages 181-189, XP010028189 ISBN: 0-8186-2742-5 Sections "MRI Distortion and Rectification", "Experiments" ---	1-8, 23-31, 46-50, 52, 55, 56
Y	US 5 099 208 A (FITZPATRICK J M ET AL) 24 March 1992 (1992-03-24) column 6, line 1 -column 8, line 52 column 10, line 5-28 figure 1A --- -/--	1-8, 23-31, 46-50, 52, 55, 56

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the International filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the International filing date but later than the priority date claimed

T later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the International search

19 July 2004

Date of mailing of the International search report

13/08/2004

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

national Application No

T/GB2004/001461

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	HAACKE EM ET AL: "Magnetic resonance imaging - Physical principles and sequence design" 1999 , JOHN WILEY & SONS, INC. , NEW YORK XP002287202 ISBN: 0471351288 page 803 -page 804; figure 26.17 -----	1-8, 23-31, 46-50, 52,55,56
P,X	WEISKOPF N ET AL: "Correction of geometric distortion in fMRI: A single-shot technique using multi-echo echo-planar imaging (EPI)" PROCEEDINGS OF THE INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE, 11TH SCIENTIFIC MEETING AND EXHIBITION, TORONTO, CANADA, 10-16 JULY 2003, page 1742 XP002287244 the whole document -----	1-5,8, 23-28, 31, 46-50, 52,55,56

INTERNATIONAL SEARCH REPORT

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PCT/GB2004/001461

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 51, 53, 54
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(v) PCT - Presentation of information
2. ☒ Claims Nos.: 9-15, 32-38
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 9-15,32-38

For the following reasons, the subject-matter of claims 9-15 and 32-38 is considered to lack clarity to such an extent that no meaningful search is possible.

Neither the wording of claims 9-15 and 32-38, nor the relevant passages of the description (page 16, line 20 - page 19, line 5 and page 39, line 11 - page 42, line 2), provide a clear definition of the specification of "data items inside said first and third image boundary" (claims 10 and 33). Therefore, it is unclear whether this wording refers to all items within the area defined by said boundaries or to the items that form the respective boundaries.

However, assuming that the first interpretation is valid, the following additional objection arises.

According to claim 9, first real-space image data items are segmented according to a first image boundary corresponding to the periphery of an image feature in said first real-space image data items (reference numeral 11 in figure 4). Furthermore, a second image boundary is defined according to the periphery of said image feature in second real-space image data items (reference numeral 10 in figure 4).

However, second real space data items are segmented according to a THIRD image boundary defined "according to said first and second boundary" (reference numeral 13 in figure 4). When taking into account that data items outside (inside) said first and third image boundaries are discarded (retained) as defined in claim 10, it would appear that the second segment (that is second real-space data items segmented "according to the third image boundary") does not contain the full image feature but only the intersection between the image feature in the second real-space data items and the third image boundary. Therefore, certain pixels within the first segment (that is first real-space data items segmented "according to the first image boundary") do not have corresponding pixels within the second segment since these pixels have been discarded in the step of "segmenting according to said third image boundary". As a consequence, it is unclear how the mapping algorithm is carried out for these pixels.

The corresponding passages of the description (page 16, line 20 - page 19, line 5 and page 39, line 11 - page 42, line 2) would not appear to provide any further information for clarification of this issue.

The same objection applies to claims 32 and 33 as well.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International Application No

/GB2004/001461

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5099208	A	24-03-1992	NONE